

PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

10/538157

APPLICANTS: TOBIAS DASSLER - 2 (PCT) **JC17 Rec'd PCT/PTO 08 JUN 2005**
PCT NO.: PCT/EP2003/013728 FILED: DECEMBER 4, 2003
PRIORITY: GERMAN NO.10258127.4 FILED: DECEMBER 12, 2002
TITLE: METHOD FOR THE PRODUCTION OF R- α -LIPOIC ACID BY FERMENTATION

SUBMISSION OF INFORMATION DISCLOSURE
STATEMENT OF DR. HOLGER POTTEN

MAIL STOP PCT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

Applicant wishes to bring to the attention of the Patent Examiner the attached Information Disclosure Statement, duly signed by Dr. Holger Potten, and the references listed on the enclosed Form PTO-1449 and attached thereto. It is respectfully requested that the foregoing Information Disclosure Statement be incorporated into the official file of the present patent application.

Respectfully submitted,
TOBIAS DASSLER - 2 (PCT)

COLLARD & ROE, P.C. Allison C. Collard, Reg.No.22,532
1077 Northern Boulevard Elizabeth C. Richter, Reg.No.35,103
Roslyn, New York 11576 Attorneys for Applicant
(516) 365-9802

ECR:jc

Encs: Information Disclosure Statement of Dr. Holger Potten,
PTO-1449 form and twenty-three (23) references

EXPRESS MAIL NO. **EV 617 792 543 US**
Date of Deposit: **June 8, 2005**

I hereby certify that this paper or fee is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10, on the date indicated above, and is addressed to Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

Maria Guastella

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JC17 Rec'd PCT/PTO 08 JUN 2005

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of

DASSLER ET AL.

Serial Number

Filed:

For:

Group Art Unit:

METHOD FOR THE PRODUCTION OF R- α -LIPOIC ACID BY FERMENTATION

Information Disclosure Statement

Honorable Commissioner of Patents and Trademarks
Washington, D.C. 20231

Sir or Madam:

I, Holger Potten, associated with the preparation and prosecution of the above-identified application, residing at Neubiberger Straße 17a, 81737 München, Germany, wish to call the attention of the Patent Examiner to the references enumerated on the enclosed PTO Form-1449.

I believe the documents enumerated on the enclosed Form PTO-1449 and attached thereto, are cited in the application and may be material to the examination of the application.

Therefore, it is respectfully requested that the foregoing Information Disclosure Statement be considered by the Examiner and incorporated into the file of this application.

I wish to comment as follows concerning the prior art references enumerated on PTO Form-1449:

DE 100 56 025 A1, cited in the application, the corresponding Derwent abstract is enclosed.

DE 41 37 773 A1, cited in the application, the corresponding Derwent abstract is enclosed.

DE 36 29 116 A1, cited in the application, the corresponding Derwent abstract is enclosed.

DE 195 33 881 A1, cited in the application, the corresponding Derwent abstract is enclosed.

DE 100 36 516 A1, cited in the application, the corresponding Derwent abstract is enclosed.

DE 102 35 270 A1, cited in the application, the corresponding Derwent abstract is enclosed.

DE 102 45 993 A1, cited in the application, the corresponding Derwent abstract is enclosed.

HERBERT ET AL., GUEST ET AL.: „Lipoic Acid Content of Escherichia coli and Other Microorganisms“, Arch. Microbiol. 106, 1975, Pages 259 – 266, cited in the application, is already in English language.

RAMA RAO ET AL.: “Synthesis of (3R,4R)-1,5-Hexadien-3,4-Diol And Its Unsymmetrical Derivatives: Application To (R)-(+)- α -Lipoic Acid”, Tetrahedron Letters, 1987, Vol. 28, No. 19, Pages 2183 – 2186, cited in the application, is already in English language.

GREEN ET AL.: “Purification and properties of the lipoate protein ligase of Escherichia coli”, Biochem. J. 309, 1995, Pages 853 – 862, cited in the application, is already in English language.

MORRIS ET AL.: “Lipoic Acid Metabolism in Escherichia coli: the lplA and lipB Genes Define Redundant Pathways for Ligation of Lipoyl Groups to Apoprotein”, Journal of Bacteriology, Vol. 177, No. 1, January 1995, Pages 1 – 10, cited in the application, is already in English language.

YADAV ET AL.: “Synthesis of α -Lipoic acid – A highly useful biologically active compound”, Journal of Scientific & Industrial Research, Vol. 49, August 1990, Pages 400 – 409, cited in the application, is already in English language.

MILLER ET AL.: “Escherichia coli LipA is a Lipoyl Synthase: In Vitro Biosynthesis of Lipoylated Pyruvate Dehydrogenase Complex from Octanoyl-Acyl Carrier Protein”, Biochemistry 2000, Vol. 39, Pages 15166 – 15178, cited in the application, is already in English language.

WALTON ET AL.: “The Synthesis of (+)- α -Lipoic Acid and its Optical Antipode”, J. Amer. Chem. Soc. 76, 1954, Page 4748, cited in the application, is already in English language.

ADGER ET AL.: “Application of Enzymic Baeyer-Villiger Oxidations of 2-Substituted Cycloalkanones to the Total Synthesis of (R)-(+)-Lipoic Acid”, J. Chem. Soc., Chem. Commun., Pages 1563 – 1564, cited in the application, is already in English language.

MORRIS ET AL.: “Identification of the Gene Encoding Lipoate – Protein Ligase A of Escherichia coli”, The Journal of Biological Chemistry, Vol. 269, No. 23, 1994, Pages 16091 – 16100, cited in the application, is already in English language.

BRINGMANN ET AL.: “A Short and Productive Synthesis of (R)- α -Lipoic Acid”, Z. Naturforsch. 54, Pages 655 -661, cited in the application, is already in English language.

PACKMAN ET AL.: "Lipoylation of the E2 components of the 2-oxo acid dehydrogenase multienzyme complexes of *Escherichia coli*", Biochem. J. 277, 1991, pages 153-158, cited in the application, is already in English language.

LINK ET AL.: "Methods for Generating Precise Deletions and Insertions in the Genome of Wild-Type *Escherichia coli*: Application to Open Reading Frame Characterization", Journal of Bacteriology, October 1997, pages 6228-6237, Vol. 179, No. 20, cited in the application, is already in English language.

HERBERT ET AL., GUEST ET AL., "Turbidimetric and Polarographic Assays for Lipoic Acid using Mutants of *Escherichia coli*", Meth. Enzymol., 1970, Pages 269-272.

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GOPALAN ET AL., JACOBS ET AL.: "Stereochemical control of yeast Reductions: Synthesis of R-(+)- α -Lipoic Acid", Tetrahedron Letters, Vol. 30, No. 42, 1989, Pages 5705 – 5708, cited in the application, is already in English language.

DESARADHI ET AL.: "A Novel Enantiospecific Synthesis of (S)-(-)-Methyl 6,8-Dihydroxyoctanoate, a Precursor of (R)-(+)- α -Lipoic Acid", J. Chem. Soc., Chem. Commun. 1990, Pages 729 – 730, cited in the application, is already in English language.

BROOKES ET AL., GOLDING ET AL.: "Synthesis of α -(R)- and α -(S)-Lipoic Acid from (S)-Malic Acid", J. Chem. Soc. Perkin Trans. I, 1988, Pages 9 – 12, cited in the application, is already in English language.

Signed this 7th day of June, 2005.



.....
Dr. Holger Potten

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FORM PTO-1449
(REV. 7-80)

U.S. DEPARTMENT OF COMMERCE
PATENT AND TRADEMARK OFFICE

ATTY. DOCKET NO. *DASSLER 2(PCT)*

SERIAL NO. *101538157*

LIST OF REFERENCES CITED BY APPLICANT

(Use several sheets if necessary)

APPLICANT: *DASSLER ET AL.*

FILING DATE:

GROUP:

U.S. PATENT DOCUMENTS

EXAMINER INITIAL		DOCUMENT NUMBER	DATE	NAME	CLASS	SUBCLASS	FILING DATE IF APPROPRIATE
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FOREIGN PATENT DOCUMENTS

		DOCUMENT NUMBER	DATE	COUNTRY	CLASS	SUBCLASS	TRANSLATION	
							YES	NO
	AL	<i>10056025 A1</i>	<i>02/07/02</i>	<i>Germany</i>				
	AM	<i>4137773 A1</i>	<i>05/19/93</i>	<i>Germany</i>				
	AN	<i>3629116 A1</i>	<i>03/10/88</i>	<i>Germany</i>				
	AO	<i>19533881 A1</i>	<i>03/20/97</i>	<i>Germany</i>				
	AP	<i>10036516 A1</i>	<i>02/07/02</i>	<i>Germany</i>				

OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

	AR	<i>Derwent abstract corresponding to DE 100 56 025 A1.</i>
	AS	<i>Derwent abstract corresponding to DE 4 37 773 A1.</i>
	AT	<i>Derwent abstract corresponding to DE 36 29 116 A1.</i>

EXAMINER	DATE CONSIDERED
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*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

FORM PTO-1449
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U.S. DEPARTMENT OF COMMERCE
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ATTY. DOCKET NO.: **DASSLER-22(PCT)**

SERIAL NO.

10/538157

APPLICANT: **DASSLER ET AL.**

LIST OF REFERENCES CITED BY APPLICANT

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FOREIGN PATENT DOCUMENTS

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	AL	10235270A1	02/12/04	Germany				
	AM	10245993A1	05/10/04	Germany				
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OTHER REFERENCES (Including Author, Title, Date, Pertinent Pages, Etc.)

	AR		Derwent abstract corresponding to DE 19533881 A1.					
	AS		Derwent abstract corresponding to DE 100 36 516 A1.					
	AT		Herbert et al., Guest et al., 'Lipoic Acid Content of Escherichia coli and Other Microorganisms', Arch. Microbiol. 106, 1975, Pages 259-266.					

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	AR	<i>Packman et al., "Lipoylation of the E2 components of the 2-oxo acid dehydrogenase multienzyme complexes of Escherichia coli," Biochem. J. 277, 1991, Pages 153-158.</i>
	AS	<i>Link et al., Journal of Bacteriology, October 1997, Pages 6228-6237, Vol. 179, No. 20.</i>
	AT	<i>Herbert et al., Guest et al., "Turbidimetric and Polarographic Assays for Lipic Acid using Mutants of Escherichia coli," Meth. Enzymol., 1970, Pages 269-272.</i>

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	AR		<i>Roma Rio et al., "Synthesis of (3R,4R)-4,5-Hexadien-3,4-Diol And Its Unsymmetrical Derivatives: Application To (R)-(+)-α-Lipoic Acid," Tetrahedron Lett., 1987, 16128, No. 19, Pages 2183-2186.</i>
	AS		<i>Allen et al., "Purification and properties of the lipote protein lipase of Escherichia coli," Biochem. J. 309, 1995, Pages 853-861.</i>
	AT		<i>Morris et al., Journal of Bacteriology, Vol 177, No. 1, January 1995, Pages 1-10.</i>

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SERIAL NO.

JCT 7 Rec'd PCT/PTO 08 JUN 2005
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	AR		<i>Yadav et al., "Synthesis of α-Lipoic acid: A highly useful biologically active compound,"</i>
			<i>Journal of Scientific & Industrial Research, Vol. 49, August 1990, pages 400-409.</i>
	AS		<i>Mittel et al., "Escherichia coli Lipid is a Lipoyl Synthase: In Vitro Biosynthesis of Lipoylated</i>
			<i>Pyruvate Dehydrogenase Complex from Octanoyl-Acyl Carrier Protein," Biochemistry 200, 31, Pages 1516-1518.</i>
	AT		<i>Walton et al., J. Amer. Chem. Soc. 76, 1954, page 4748.</i>

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AS	nes to the Total Synthesis of (R)*(+)-Lipoic Acid," J. Chem. Soc., Chem. Commun., Pages 1537-1546.
AT	Morris et al., "Identification of the Gene Encoding Lipoyl-Protein Ligase A of <i>Escherichia coli</i> ," The Journal of Biological Chemistry, Vol. 269, No. 23, 1994, Pages 16091-16100.
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	AT		<i>Brookes et al., Golding et al., "Synthesis of d-(R)- and L-(S)-Lipoic Acid from (S)-Malic Acid," J. Chem. Soc. Perkin Trans. I, 1988, Pages 9-12.</i>

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